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DOE ORDER# 5400.1

94 RFL 12547

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IN REPLY TO RFP CC NO

ACTION ITEM STATUS

☐ PARTIAL OPEN

☒ CLOSED

LTR APPROVALS

ORIG & TYPIST INITIALS

LS PW / 4

December 21, 1994

94-RF-12547

Kurt Muenchow  
Environmental Restoration Division  
DOE, RFFO

## OPERABLE UNIT SEVEN (OU 7) WELL ABANDONMENT PROPOSAL - LJPW-024-94

Action Required Propose to the Colorado Department of Public Health and Environment (CDPHE) and the Environmental Protection Agency (EPA) abandonment of monitoring wells that will fall under the proposed footprint of the landfill cover at OU 7

The purpose of this letter is to present the management strategy for the abandonment of existing monitoring well that will fall under the proposed footprint of the landfill cover at OU 7 Paper and disk copies of the background information concerning each well and five maps designating the wells proposed for abandonment are attached

Abandonment of these wells was originally proposed during the meeting with CDPHE and EPA on December 8, 1994 CDPHE suggested that DOE propose the abandonment in letter form prior to presenting the strategy in the IM/IRA DD

For further information, please feel free to contact me at extension 8553

  
Laurie J. Peterson-Wright  
Operable Unit 7 Project Manager  
Environmental Restoration Program Division

LJP cb

Orig and 1 cc - K Muenchow

Attachments  
As Stated

ADMIN RECORD

A-0007-000239

## **Letter Objectives**

The purpose of this letter is to present DOE's management strategy and solicit approval from CDPHE and EPA on the abandonment of existing monitoring wells that fall under the proposed footprint of the landfill cover at the Present Landfill, Operable Unit 7

## **Existing Monitoring Well Network**

Currently there are 60 groundwater monitoring wells (54 active and 6 abandoned) located at or near the Present Landfill. Twenty-seven were installed as RCRA regulatory wells and are currently sampled quarterly for the RCRA groundwater monitoring program at the Present Landfill. Twenty-five were installed as CERCLA characterization wells and are currently sampled quarterly for the sitewide groundwater monitoring program. One was installed as a special purpose well and is also currently sampled quarterly. Five damaged RCRA-characterization wells were abandoned in 1993. One damaged RCRA-characterization well was replaced in 1993. The purpose of all 60 wells installed at or near the Present Landfill is summarized below.

In 1986, two well pairs were installed to characterize the hydrogeology in the vicinity of the landfill. One well pair was installed upgradient (0986 and 1086) and the other downgradient (0786 and 0886) of the landfill. In addition, wells 0586 and 0686 were installed down No Name Gulch above the confluence with North and South Walnut Creeks.

In 1987, 17 monitoring wells were installed to characterize the site and determine the effectiveness of the groundwater intercept system and slurry walls. Well 5887 was installed upgradient immediately west of the landfill. Eight wells (5987, 6087, 6187, 6287, 6387, 6487, 6587, and 6687) were installed across the groundwater intercept system. Five wells (6787, 6887, 7087, 7187, and 7287) were installed to evaluate the north and south slurry walls. Three wells (4087, 4187, and 4287) were installed downgradient of the East Landfill Pond embankment to monitor groundwater leaving the landfill.

In 1989, 13 monitoring wells were installed. Well B106089 replaced well 5987, which was drilled into the clay seal of the groundwater intercept system. Six wells (B206189, B206289, B206589, B206689, B206789, and B207289) were drilled to locate and monitor potential subcropping sandstones around the East Landfill Pond. Two wells (B206389 and B206489) were installed to evaluate the effectiveness of the slurry walls. Two wells (B206889 and B206989) were installed to monitor the groundwater in the vicinity of the discharge points for the groundwater intercept system, and two wells (B207089 and B207189) were installed to monitor bedrock sandstones encountered in wells 0886 and 4187.

Three CERCLA characterization wells (76792, 76992, and 77392) were installed and sampled in 1993 for the Phase I RFI/RI at OU 6. One well (00393) was installed under the Well Abandonment and Replacement Program (WARP) to replace a damaged RCRA regulatory well (6787). Sixteen CERCLA characterization wells (70093, 70193, 70293, 70393, 70493, 70593, 70693, 70893, 71193, 71493, 71693, 71893, 72093, 72293, 72393, and 72493) were installed and sampled in 1993 for the Phase I RFI/RI at OU 7. Four CERCLA characterization wells (52894, 52994, 53094, and 53194) were installed for the Phase II RFI/RI at OU 7. The Phase II wells will be sampled monthly for four months beginning in December 1994. After the CERCLA characterization has been completed the wells will be sampled quarterly under the sitewide groundwater monitoring program. Due to their downgradient location, wells 52894, 52994, and 53194 could be designated as RCRA compliance wells.

### **Abandonment of Existing Monitoring Wells (Under Landfill Cover)**

DOE proposes to abandon 26 existing monitoring wells that fall under the proposed footprint of the landfill cover (Figure 1). These wells would compromise the integrity of the cover because holes would have to be cut in synthetic cover layers around each well. The presence of monitoring wells in the landfill after final closure would potentially result in differential settlement of the cap because the fill material could not be equally compacted around the well casing. These 26 wells were installed to characterize the site, determine the effectiveness of the groundwater intercept system and slurry walls, monitor potential subcropping sandstones around the East Landfill Pond, and characterize leachate within the landfill. The original purpose of each of these wells has been fulfilled, and the wells are no longer needed in the groundwater monitoring network. Wells proposed for abandonment are as follows:

0786	5887	B106089	71193
0886	6087	B206289	71493
	6187	B206489	71693
	6287	B206589	71893
	6487	B206789	72093
	6587		72293
	6687		72393
	6887		72493
	7087		
	7287		00393

Wells 0786 and 0886 were installed to characterize the hydrogeology downgradient of the landfill. Although these wells are currently designated as RCRA regulatory wells, the original purpose of the wells has been fulfilled, new wells have been installed farther downgradient of the landfill, and the wells are near the location of the seep collection system that will be constructed in spring 1995 and may be damaged during construction.

Wells 5887, 6087, 6187, 6287, 6487, 6587, 6687, 6887, 7087, and 7287 were installed to characterize the site and determine the effectiveness of the groundwater intercept system. Although these wells are currently designated as RCRA regulatory wells, the original purpose of the wells has been fulfilled. The groundwater intercept system is not operating effectively and will be abandoned in place and replaced during final landfill closure.

Wells B106089, B206289, B206489, B206589, and B206789 were installed to evaluate the effectiveness of the groundwater intercept system and slurry walls and to locate and monitor potential subcropping sandstones. These wells are also currently designated as RCRA regulatory wells. Again, the original purpose of the wells has been fulfilled.

Wells 71193, 71493, 71693, 71893, 72093, 72293, 72393, and 72493 are CERCLA characterization wells that were installed at OU7 to characterize leachate. The leachate has been adequately characterized. Well 00393 was installed as a replacement well to evaluate the effectiveness of the groundwater intercept system. The groundwater intercept system is not operating effectively and will be abandoned in place and replaced during final landfill closure.

The purpose of these 26 wells has been fulfilled and the wells are no longer necessary components of the existing monitoring-well network. As part of the pre-construction site improvement process to facilitate cap construction, DOE proposes to abandon these 26 wells in 1996 under WARP. DOE proposes to discontinue quarterly monitoring of these wells in 1995.

The five existing gas venting wells in the landfill will be evaluated for use in the final landfill cover design as part of the gas control system. If the gas venting wells are not used in the design of the final cover, DOE proposes to abandon them.

DOE proposes to stop sampling monitoring wells located outside of the landfill cover on the north and south sides to lower operation and maintenance costs during the 30-year post-closure care period. DOE will continue collecting water-level measurements to monitor the potentiometric surfaces and evaluate the effects of the remedial design on groundwater flow. Remaining monitoring wells upgradient and downgradient will be evaluated for use in the post-closure groundwater-monitoring network.

These changes require approval from the RCRA Subpart D and F groups at CDPHE and EPA.

### **Abandonment Procedures**

All wells approved for abandonment will be plugged and abandoned in accordance with *Geotechnical SOP GT 11, Plugging and Abandonment of Wells*. Wells will be abandoned in place by filling the casing with bentonite grout and topping it off with concrete. To allow for settlement of the landfill waste and prevent the well casing from damaging the cover, the PVC casing will be broken off at least 5 feet below the existing grade. A water-tight cover will be permanently fixed to the top of the casing. The protective casing and the concrete well pad will be removed. Fill material will be placed above the well cover to the surface. Because additional fill material will be placed on the existing surface to achieve grade and a composite landfill cover will be constructed on top of that, a concrete slab with the well ID and date of abandonment will not be placed at the surface. Abandonment of wells in place is recommended to limit the volume of drill cuttings or investigation-derived material (IDM) generated. The IDM will be containerized as specified in Field Operations SOP FO 29 during the well abandonment procedure. However, DOE proposes to place the IDM in the landfill before the final cover is constructed.

### **Action Requested**

DOE requests a written response from CDPHE and EPA that approves or makes recommendations to modify this proposal within two weeks of the date of this letter.